2012 Biology

Intermediate 1

Finalised Marking Instructions

Part One: General Marking Principles for Biology – Intermediate 1

GENERAL MARKING ADVICE: BIOLOGY

The marking schemes are written to assist in determining the "minimal acceptable answer" rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

1. There are no **half marks**. Where three answers are needed for two marks, normally one or two correct answers gain one mark. The Marking Instructions will show how marks should be allocated in questions worth more than one mark.

2. In the mark scheme, if a word is **underlined** then it is essential; if a word is (**bracketed**) then it is not essential.

3. In the mark scheme, words separated by / are **alternatives**.

4. There are occasions where the second answer negates the first and no marks are given. There is no hard and fast rule here, and professional judgement must be applied. The marking instructions cover these eventualities, wherever possible.

5. 'Bad Biology' should not result in a mark being awarded. Often, an otherwise correct answer can be negated by a response which is biologically wrong.

6. Where questions on data are in two parts, if the second part of the question is correct in relation to an incorrect answer given in the first part, then the mark can often be given. The general rule is that candidates should not be penalised repeatedly.

7. If a numerical answer is required and units are not given in the stem of the question or in the answer space, candidates must supply the units to gain the mark. If units are required on more than one occasion, candidates should not be penalised repeatedly.

8. Clear indication of understanding is what is required, so:

- if a description or explanation is asked for, a one word answer is not acceptable
- if the questions ask for **letters** and the candidate gives words and they are correct, then give the mark
- if the question asks for a word to be **underlined** and the candidate circles the word, then give the mark
- if the result of a calculation is in the space provided and not entered into a table and is clearly the answer, then give the mark
- **chemical formulae** are acceptable e.g. CO_2, H_2O
- words not required in the syllabus can still be given credit if used appropriately eg Rhesus negative.

9. Incorrect **spelling** can be given. Sound out the word(s),

- if the correct item is recognisable then give the mark
- if the word can easily be confused with another biological term then **do not** give the mark eg antibodies instead of antibiotics
- if the word is a mixture of other biological words then **do not** give the mark, eg 'dormination'.

10. Presentation of Data:

- if a candidate provides two graphs or bar charts (eg one in the question and another at the end of the booklet), mark both and give the higher score
- note that in Marking From Image, a copy of the alternative graph grid from the end of the booklet will be found immediately underneath the graph grid in the body of the question paper
- if the question asks for a line graph and a histogram or bar chart is given, then do not give the mark(s) for the plots. Credit can be given for labelling the axes correctly, or inserting an appropriate scale
- where a line graph is plotted, the individual points should be joined by a straight line, directly connecting adjacent points. A line of best fit is not acceptable, unless specifically asked for
- if the data on the horizontal and vertical axes are transposed, then do not give the mark for labelling axes. A mark may be awarded for plots if the plots are accurate and are plotted against an appropriate scale
- if the graph uses less than 50% of the axes, then do not give the mark
- if 0 is plotted when no data is given, then do not give the mark (ie candidates should only plot the data given). The same applies if the plots in a line graph continue past the highest value provided, unless candidates have been asked to predict a point beyond the data provided
- no distinction is made between bar charts and histograms for marking purposes. (For information: bar charts should be used to show discontinuous features, have descriptions on the horizontal axis and have separate columns; histograms should be used to show continuous features; have ranges of numbers on the horizontal axis and have contiguous columns)
- where data is read off a graph it is often good practice to allow for acceptable minor error. Any tolerance in an answer is given in the Marking Instructions
- when plotting points on a line graph, no 'daylight' should appear between the plotted point and the place on the grid corresponding to where the plot should be
- when joining points on a line graph, a single line should be drawn between adjacent plots – do not accept a thick, shaded line or double line

- when plotting a bar chart or histogram, all bars should have a clearly drawn horizontal line across the top AND no 'daylight' should be visible between the drawn line and the place on the grid corresponding to where the line should be drawn. Furthermore, plotting only horizontal bars without supporting 'sides' to the bar is insufficient
- always check the additional graph paper or pie chart provided towards the end of the question paper
- when drawing a pie chart, the same principles apply – no 'daylight', no double lines etc
- although candidates are instructed to use ink throughout (to increase legibility of scanned images), some may have used pencil.

11. Use of language

- It is not possible to list every possible way in which candidates may provide a correct answer eg increases, gets higher, gets bigger etc all mean the same and, if correct, the mark should be awarded.
- Candidates often use colloquial or casual language and, where there is no ambiguity and a biological term is not required, the mark should be awarded eg where 'lower leaves removed' is an acceptable answer and the candidate's answer is 'chop off the lower leaves', the mark should be awarded.

12. Interpreting an answer

- Candidates frequently provide part of an answer which implies the answer provided in the Marking Instructions. A mark should not be awarded if the marker has to 'do the work' or has to make an assumption about what the candidate might have intended with their response.
- Where a conclusion is required, do not accept a re-statement of the results – some form of interpretation of the results to form a conclusion is always required.

13. Biologically correct answers

Where a candidate provides an answer which is correct biologically and is an appropriate answer to the question, the mark should be awarded, even if the exact answer is not provided in the Marking Instructions.

14. One-off answers not covered by the Marking Instructions

- If a response is not covered by the Marking Instructions, consider whether this answer is equivalent to the acceptable answer and if so, award the mark and make a record of your decision as another candidate may have answered in the same way and it is important that you are consistent in your marking.
- If you cannot make a decision, check if the issue has already been identified by another marker and a message sent to all markers with a decision on the issue.
- You are encouraged to make a decision and to be consistent in applying your decision.

Part Two: Marking Instructions for each Question

Section A

Question			Expected Answer/s	Max Mark	Additional Guidance
1			B	1	
2			C	1	
3			D	1	
4			C	1	
5			A	1	
6			A	1	
7			D	1	
8			A	1	
9			C	1	
10			B	1	
11			B	1	
12			D	1	
13			A	1	
14			A	1	
15			B	1	
16			B	1	

Question			Expected Answer/s	Max Mark	Additional Guidance
17			D	1	
18			C	1	
19			C	1	
20			A	1	
21			D	1	
22			A	1	
23			C	1	
24			A	1	
25			B	1	

Section B

Question			Expected Answer/s	Max Mark	Additional Guidance
1	**a**	**(i)**	Wheezing and breathless(ness)	**1**	Additional conditions (eg cough) negates.
1		**(ii)**	Chest-tightness	**1**	Accept tight chest
1		**(iii)**	Treatment/medicine/inhaler not working effectively/not very effective	**1**	Accept equivalent statement. eg 'It is not working effectively' is an insufficient answer.
1	**b**		Peak flow meter	**1**	Unacceptable answers – peak flow/peak meter/flow meter. 'Inhaler' alone is insufficient but would not negate an otherwise correct answer.
2	**a**		Muscle/muscular	**1**	'Cardiac' does not negate but is insufficient by itself. Additional incorrect response will negate an otherwise correct answer.
2	**b**		Blood Vessel — Description of Blood Vein → towards the heart Capillary → through the tissues Artery → away from the heart 3 correct = 2 marks 1 or 2 correct = 1 mark 0 correct = 0 marks	**2**	Lose one mark for each additional arrow.
2	**c**		Food, oxygen, carbon dioxide, salt, sugar, iron, minerals, water, nutrient/named nutrient, waste/named waste, protein, antibodies, hormones etc.	**1**	O_2, CO_2, CO - acceptable. Cells, named cell (eg red blood cell), plasma - not acceptable. Additional incorrect response will negate an otherwise correct response, eg 'Oxygen and capillary'. A response such as 'Oxygen in red blood cells' is acceptable but 'Red blood cells', alone is unacceptable.

<table>
<tr><th colspan="3">Question</th><th>Expected Answer/s</th><th>Max Mark</th><th>Additional Guidance</th></tr>
<tr><td>3</td><td>a</td><td>(i)</td><td><u>Dairy and meat</u></td><td>1</td><td></td></tr>
<tr><td>3</td><td></td><td>(ii)</td><td><u>21</u></td><td>1</td><td>Range (eg 0 – 21) – not acceptable.</td></tr>
<tr><td>3</td><td></td><td>(iii)</td><td><u>175</u></td><td>1</td><td></td></tr>
<tr><td>3</td><td>b</td><td></td><td><u>Energy</u></td><td>1</td><td>An additional incorrect answer negates an otherwise acceptable answer eg energy and growth & repair. ‘Energy for growth’ is acceptable.
‘Energy and warmth’ is acceptable.
‘Warmth’ alone is unacceptable.</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>4</td><td>a</td><td>(i)</td><td>(Round) 1 or visual (only)</td><td>1</td><td></td></tr>
<tr><td>4</td><td></td><td>(ii)</td><td><u>530</u></td><td>1</td><td></td></tr>
<tr><td>4</td><td>b</td><td></td><td>
<table>
<tr><th>Factor</th><th>Increases reaction time</th><th>Decreases reaction time</th></tr>
<tr><td>Practice</td><td></td><td>✓</td></tr>
<tr><td>Drinking Alcohol</td><td>✓</td><td></td></tr>
</table>
Both correct = 1
</td><td>1</td><td>Additional ✓ in any box = no mark
Only one ✓= no mark</td></tr>
<tr><td>4</td><td>c</td><td></td><td>Diabetes/brain disorder/nerve disorder/ arterial disease/named disorder e.g. stroke/brain tumour</td><td>1</td><td>Other named conditions not directly associated with a long reaction time (eg angina, asthma, arthritis, obesity, heart failure etc. – unacceptable. The presence of one incorrect answer negates an otherwise correct response.</td></tr>
<tr><td colspan="6"></td></tr>
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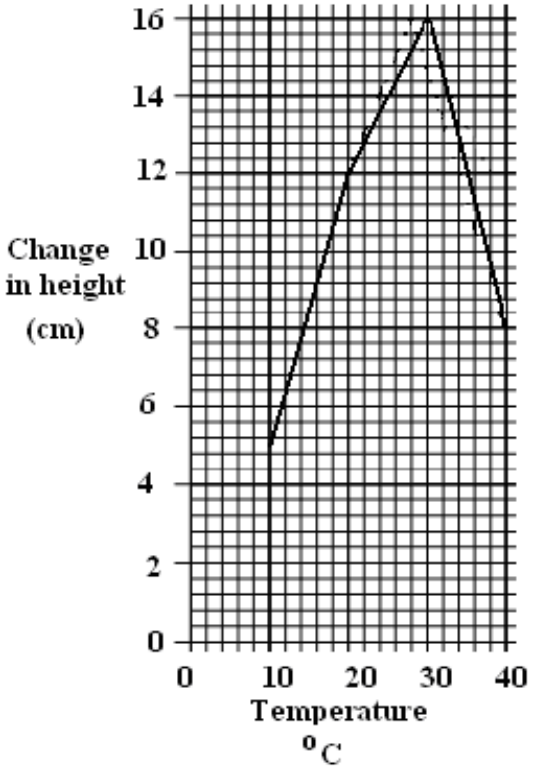
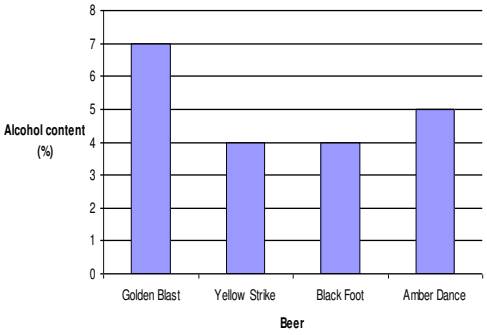
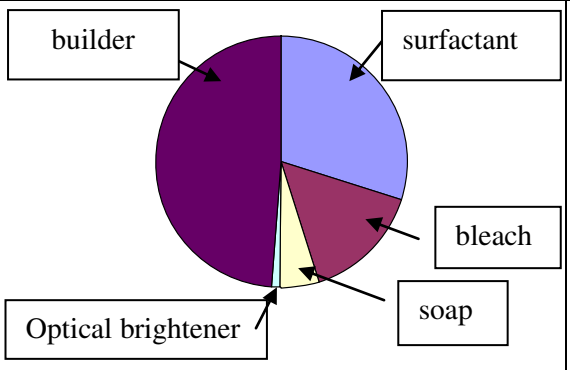
Question			Expected Answer/s	Max Mark	Additional Guidance
5	**a**		Capillary mat(ting)	**1**	'Capillary' alone or 'matting' alone are unacceptable.
5	**b**		Watering can/(water) hose/water retentive gel/automatic irrigation system/any other reasonable method	**1**	Rain/watering/can/water it (alone) - not acceptable.
5	**c**		Sand Fertiliser Both required for 1 mark	**1**	
6	**a**	**(i)**	Any two from type of plant/amount or volume of water/(sun)light (intensity)/type of soil/volume of soil/type of pot/size of pot.	**2**	Water (alone) is unacceptable. Use the same plant is unacceptable. 'Same starting height' or any reference to time or temperature – unacceptable. If two correct variables are written on a single line – award two marks. If more than one variable is written on a single line and one is incorrect, it negates a correct response – award no mark for that variable.
6		**(ii)**	Repeat the experiment/repeat with more (than 4) plants. Do it again/repeat it again/do it more than once	**1**	

Question			Expected Answer/s	Max Mark	Additional Guidance
6		(iii)	 1 Correct label on horizontal axis (including units, °C) = 1 2 Correct scale on vertical axis = 1 3 Correct plots (all 4) = 1	3	1 Label on horizontal axis must show 'Temperature' or 'Temp.' and units '°C'. 2 A scale on vertical axis must use a minimum of half the axis – eg 5, 10, 15, 20 is acceptable. If scale which does not use a minimum of half the axis, do not award mark for scale. A minimum of two correct scale points required, as the others are implied. 3 Accept plots as shown (10,5), (20,12), (30,16) and (40,8) or plotted accurately to an incorrect or different scale. Points must be joined by a single line which passes through the plots.

Question			Expected Answer/s	Max Mark	Additional Guidance
6	a	(iv)	Any correct conclusion from these results e.g. Temperature change affects the height or Smallest change in height was at 10°C or Greatest change in height was at 30°C	1	A re-statement of results is not acceptable – eg at 10°C, the change in height was 5 cm.
6	b		Node(s)	1	
6	c		To encourage/help root growth or more/faster root growth.	1	'Makes the roots grow' or 'for root growth' alone (ie without encourage etc) is not sufficient – do not award mark. 'Helps plant/it grow' is not acceptable – do not award mark.
7	a		Protects plants/them from low temperature/wind/rain/drying out/provides the right or suitable temperature for growth. The plants/they grow faster.	1	'Keeps the same temperature' is unacceptable. Reference to weather alone is unacceptable. Reference to pests or disease does not negate an otherwise correct answer.
7	b	(i)	£3100	1	
7		(ii)	3 (times greater)	1	
7	c		*True* | *False* | *Correction* (blank) | ✓ | (Fungal) mould ✓ | (blank) | (blank) One mark per correct row	2	Any type of mould disease acceptable eg grey mould. Accept fungus. Correction must relate to the underlined phrase.

Question			Expected Answer/s	Max Mark	Additional Guidance
8	a	(i)	 Correct label on vertical axis including units (%) = 1	1	If no label or units on the vertical axis insert NR If label but no units award 0. If units but no label award 0.
8		(ii)	3 x correct plots = 1	1	
8	b		Type of yeast/temperature/warmth/ fermentation time/amount of yeast/yeast/ amount of sugar/sugar	1	Type of beer is unacceptable.
8	c		Ferment(ation)	1	
9	a		Treatment → Type of milk produced heated to remove some liquid → skimmed nearly all fat removed → semi-skimmed some fat removed → evaporated All 3 correct = 1	1	Additional arrows negate an otherwise acceptable answer.
9	b		Bacteria	1	Reference to testing milk for fitness to drink is unacceptable but does not negate an otherwise correct answer.

Question			Expected Answer/s	Max Mark	Additional Guidance
9	**c**		Bacteria	**1**	Additional incorrect answer (eg bacteria and yeast) negates an otherwise correct answer. 'Kills bacteria' is unacceptable.
10	**a**		Fish (products)	**1**	Presence of an incorrect answer negates an otherwise correct response.
10	**b**		2 : 1	**1**	
10	**c**		Yeast (products)	**1**	Red/coloured yeast is acceptable. Reference to dye or food colouring is unacceptable.
11	**a**		49	**1**	If 49 is the clear answer in the area for calculation (ie not in the table) award mark. % symbol is not required (provided in the stem).
11	**b**		 All 5 correct labels required	**2**	All 5 ✓ = 2 marks 3 or 4 ✓ = 1 mark 0, 1 or 2 ✓ = 0 marks Percentage figures in boxes, (rather than Ingredient names) is unacceptable. Inclusion of correct percentages in addition to names does not negate.

Question			Expected Answer/s	Max Mark	Additional Guidance
12	**a**	**(i)**	40	**1**	
12		**(ii)**	3	**1**	
12	**b**		Thrush/athlete's foot	**1**	Any other human fungal infection is acceptable.
12	**c**		Bacteria	**1**	Additional incorrect answer (eg bacteria and viruses) negates an otherwise correct response.

[END OF MARKING INSTRUCTIONS]